

## SEVENTH QUIZ

You have 15 minutes from the start of class to complete this quiz. Give partial answers if you can't give complete ones. Read the questions with care; work with deliberate speed. Don't give us more than we ask for. The usual instructions apply. Good luck!

### Problem 1 (4 points)

(a) (2 points) One aspect of natural language understanding is speech recognition—converting the sounds a speaker makes into words. Give one example of what's hard about speech recognition (i.e., why we still don't have systems that can reliably recognize continuous speech)?

(b) (2 points) Even if the user typed in English words, natural language understanding would be hard. Give one example of what's hard about understanding even correctly written natural language?

(c) (1 point) We can train a dog to respond to English commands. Why is this different from natural language understanding?

### Problem 2 (5 points)

Here are the steps of test-driven development (slightly rearranged from class): 1. Pick a behavior to implement. 2. Write a test of that behavior. 3. Try to compile the test (and all previous tests). 4. Change the code so the tests compile correctly. 5. Run all the tests. 6. Change the code so it will pass all the tests; run the tests and change until that's true. 7. Refactor and rerun the tests. Then repeat for the next behavior.

(a) (3 points) Give one advantage of writing tests before writing the code that can run them.

(b) (2 points) Give another advantage of the incremental approach of test-driven development over the more conventional approach to writing software.

**Problem 3** (12 points)

Your friends have chosen you to plan a ski trip over spring break. The payoff matrix below shows your three alternative destinations and the utility of each destination under various weather conditions.

	Good Snow Conditions	Fair Snow Conditions	Poor Snow Conditions
Mammoth	4.0	3.9	3.6
Aspen	3.8	3.9	3.8
Banff	3.4	3.9	4.2

- (a) (2 points) Which alternative do you choose if you follow the optimist strategy, and what is the utility of that alternative? (Showing how you get your answer will help you get partial credit.)
- (b) (2 points) Which alternative do you choose if you follow the pessimist strategy, and what is the utility of that alternative? (Showing how you get your answer will help you get partial credit here, too.)
- (c) (4 points) Which alternative do you choose if you follow the regrettist strategy? (Here, you have to draw the “regret matrix.”)
- (d) (4 points) If the three strategies above don’t all give the same answer, which would you use in making your final decision, and why?